

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (currently amended) A method of multipath combining, comprising:

(a) forming at least one matrix of covariances of multipath inputs from a single receiver antenna;

(b) finding an eigenvector of said matrix; and

(c) combining said multipath inputs relatively weighted according to the components of said eigenvector.

Claim 2 (original) The method of claim 1, wherein:

(a) said eigenvector is associated with a maximal eigenvalue of said matrix.

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Claim 3 (original) The method of claim 1, wherein:

(a) said weightings have magnitudes proportional to the squared magnitudes of said eigenvector components and have phases proportional to the phases of said eigenvector phases.

Claim 4 (original) A method of multipath combining, comprising:

(a) forming a first matrix of covariances of multipath inputs over a first range and a second matrix of covariances of multipath inputs over a second range;

(b) forming an estimation matrix from said first and second matrices;

(c) finding an eigenvector of said estimation matrix; and

(c) combining said multipath inputs relatively weighted according to the components of said eigenvector.

Claim 5 (original) The method of claim 4, wherein:

(a) said eigenvector is associated with a maximal eigenvalue of said estimation matrix.

Claim 6 (original) The method of claim 4, wherein:

(a) said weightings have magnitudes proportional to the squared magnitudes of said eigenvector components and have phases proportional to the phases of said eigenvector phases.

Claim 7 (original) The method of claim 4, further comprising:

(a) forming a second estimation matrix from said first and second matrices;
(b) finding a second eigenvector of said second estimation matrix; and
(c) wherein said combining said multipath inputs relatively weighted according to the components of said eigenvector includes relatively weighted also according to the components of said second eigenvector.

Claim 8 (original) A multipath receiver, comprising:

(a) a plurality of detectors, each detector detecting a path of a multipath input;
(b) first circuitry coupled to said detectors and connected to form a first matrix of covariances of outputs of said detectors over a first range and a second matrix of covariances of outputs of said detectors over a second range;
(c) second circuitry coupled to said first circuitry and connected to form an estimation matrix from said first and second matrices;
(c) third circuitry coupled to said second circuitry and connected to find an eigenvector of said estimation matrix; and

(c) fourth circuitry coupled to said third circuitry and connected to combine said outputs relatively weighted according to the components of said eigenvector.

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Claim 9 (original) The receiver of claim 8, wherein:

(a) said first, second, third, and fourth circuitry include a programmed processor.
